Abstracts

Low Cost Electronically Steered Antenna and Receiver System for Mobile Satellite Communications (Dec. 1996, Part II [T-MTT])

J.I. Alonso, J.M. Blas, L.E. Garcia, J. Ramos, J. de Pablos, J. Grajal, G.G. Gentili, J. Gismero and F. Perez. "Low Cost Electronically Steered Antenna and Receiver System for Mobile Satellite Communications (Dec. 1996, Part II [T-MTT])." 1996 Transactions on Microwave Theory and Techniques 44.12 (Dec. 1996, Part II [T-MTT] (1996 Symposium Issue)): 2438-2449.

The design, construction, and basic characteristics of an electronically steered, adaptive phased array antenna for land mobile satellite communications are described here. The antenna system includes an array of six microstrip stacked patch antennas, each one connected to an RF channel, which include a monolithic microwave/millimeter wave integrated circuit (MMIC) low noise amplifier and a commercial silicon monolithic I-Q modulator. A six-way microstrip combiner adds the six channels so that the resulting signal is introduced in a global positioning system (GPS) receiver, constructed with two commercial application specific integrated circuits (ASIC ‘s). The receiver has a PC interface which include control boards, specifically designed for this application, that allow the setting of the amplitude and phase of each RF channel. Acquisition and tracking algorithms have been programmed in C-language for working in real time using as input data the signal levels provided by the receiver.

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